Lift Station
Screening Process
Grit Chambers
Distribution Chambers
Aeration Tanks
Settling Tanks
Desinfection
Digestion Tanks
Sludge Processing
Sludge Drying
thomas puts to work our decades of experience to custom design systems to meet your individual needs. Specially engineered features increase the reliability of our machines in your environment.

No other company comes close to thomas’ engineering and design capabilities. We can deliver equipment that has been custom designed if necessary, to fit perfectly your specific application. Through our computer-aided design department and real-life experience, we utilize the latest technology and practical design sense to find effective solutions for your plants.

thomas’ sales representatives and engineers utilize their vast experience and expertise to work closely with our clients. They determine those factors of each individual application which have a direct bearing on the conveyor’s reliability.

- Correct Size / Appropriate Speed
- Correct Construction Materials
- Maintaining Accurate & Consistent Tolerances in Manufacturing
- Complete Assembly and Testing Before Shipment
- Vast Inventory of Stock Screws & Parts

Since 1953, thomas has been the industry leader in providing reliable, quality conveying systems. With more than three hundred employees in four manufacturing facilities, thomas is the largest screw manufacturer in North America. But is it the reliability and the long service life of our products that has made us the ‘giant’ in this industry.

1. PRETREATMENT

Lift Station / Pumping Station

The lift stations bring the raw sewage from underground gravity pipelines into the plant.

Screen Processing

When wastewater first enters the treatment plant, it passes through bar screens, belt screens or spiral screens which remove coarse materials such as rags, bottles, and bags which could otherwise damage downstream operators and process equipment.

Products used:
- Shaftless Screw & Screw Conveyor
- Belt Screen or Belt Filter Press
- Screw Conveyor

Grit Chamber

The function of a grit chamber is to capture inorganic solids such as dirt and sand that cause wear to pumps and reduce space in process tanks. Lower screens along the floor of the basins are used to remove the settled solids to the grit chamber while the skimmers along the top help slow the flow to a rate where the grit will have time to settle.

Products used:
- Shaftless Screw & Screw Conveyor
- Distribution Chamber Pump Screw

Distribution Chamber Pump Screw

The return sludge structure provides sludge pumping, flow rate control to primary oxidation ditch process, and mixing point for raw sewage and return sludge, i.e. Return Activated Sludge.

Products used:
- Shaftless Screw & Screw Conveyor
- Waste

Waste

Solids are removed and sent to the landfill.

2. TREATMENT (LIQUID)

Aeration Tank

Secondary treatment takes place in the aeration tanks. Large tanks mix the partially treated wastewater with oxygen to support bacteria which devour organic waste. The bacteria levels are managed to provide the most efficient removal process.

Secondary Setting Tank

Oxidation Ditches: provide mixing, oxygen transfer and retention time for microorganisms to convert organic to more stable compounds creating an activated sludge mixed liquid.

Products used:
- Shaftless Screw & Screw Conveyor

Clarifier / Sand Filtration

Clarifiers provide detention time for activated sludge to settle and be drawn off gradually and returned to be mixed with incoming raw sewage, known as Return Activated Sludge. The process also removes floatable materials by skimming. The clarified water from the clarifiers then goes to the sand filters for further treatment. The Sand Filters further aid in the removal of suspended particles, floating matter and organics that could cause pollution. The clarified wastewater is drawn from the top of the aeration tanks through spillways. By this point the water is already quite clear. Polymers may be added to concentrate any remaining material. Once again, suspended particles settle to the bottom and are removed by scrapers or hoppers.

Products used:
- Shaftless Screw & Screw Conveyor
- Solids

Desiltingation

Chlorination may be used as a final treatment before the effluent is discharged to a water supply. Chlorine (or other disinfection process) is used to kill any pathogens still remaining in the treated water.

3. TREATMENT (SOLID)

Digestion Tank

Sludge is sent to the digestion tanks where digested substrate is dewatered.

Sludge Processing (Centrifuges and Belt Filter Press)

Sludge is processed to remove any additional water.

Products used:
- Shaftless Screw & Screw Conveyor
- Sludge Processing Belt Filter Press

Sludge Drying

Many facilities also include a drying station such as an incinerator via screw, drag conveyor or belt filter press. Remanufactured processed sludge is dried and transported to storage facilities where it can be converted to fertilizer. Drying results in a 4 to 1 reduction in sludge volume.

Products used:
- Shaftless Screw & Screw Conveyor
- Sludge Drying Belt Conveyor, Screw Conveyor, Drag Conveyor and/or Bucket Elevator

Waste

Solids are removed and sent to the landfill.
Our extensive industry experience enables us to provide you with the answers to those troublesome areas that impact your ability to get product out the door. Industry specific product guides are available for a number of targeted markets.

- Pulp & Paper
- Rendering
- Wastewater Treatment
- Dust Collection/Air Pollution Control
- Wine & Beverage
- Wood Products
- Food Processing
- Mixer & Shredder
- Aggregate
- Waste-to-Energy
- Chemical & Heavy Industrial
- Cement